GAZETTE, and let these gentlemen cull out what seems suitable for publication. This is given as a suggestion and from an earnest desire to reach in some way the good work that is being done and to turn into useful channels energies that are being wasted. We mention these two publications only, because they are the only ones entirely devoted to the interests of botanists. Other journals could be mentioned, but such notes as we speak of would not seem so fitting in them as more elaborate papers. There is good work enough to record to keep the *Torrey Bulletin* and the GAZETTE both busy in simply selecting the most important facts, and we hope that soon their pages will have to be increased in number to hold the notes which will come in on them like a flood.

GERMINATION AND GROWTH OF PARASITIC PLANTS.—Much interest has been manifested recently in regard to the germination of that class of plants which have heretofore been regarded as parasitics, and advocates are still found of both theories,—that they may germinate without attachment to a mother plant, and, that it is requisite for germination. Lindley says: "According to the observation of Vaucher of Geneva, the seeds of *Orobanche ramosa* will lie many years inert in the soil unless they come in contact with the roots of Hemp, the plant upon which that species grows parasitically, when they immediately sprout. Schlauter states that they only seize seedlings, and are unable to attach roots of stronger growths." In the summer of 1878, I collected in abundance near Haddonfield, New Jersey, *Orobanche minor*, (see BOTANICAL GAZETTE, Vol. 3, No. 9, September, 1878,) and as many of the specimens had ripe seeds I scattered them with a liberal hand over the grass plot and flower beds in the yard attached to my residence, hoping thereby for an opportunity to watch their development and growth; but as not a single specimen made its appearance during the following year, I had almost concluded my experiment a failure. A few days ago on going into my conservatory I was surprised to find I was there harboring three specimens, growing in the flower pots with Geraniums. These Geraniums had been transplanted from the conservatory to the yard in the summer of 1878 and hence were growing in the flower beds when the seeds of the Orobanche were scattered. In the fall of the same year they were retransplanted to the conservatory; the same process was repeated in the year 1879. One of the three specimens has been removed from the place of growth, and I have been unable to find an attachment to the roots of the Geraniums in any way, to either the main root or any of the smaller young fibrous roots, hence I am led to believe this plant at least has had an independent existence; the bulbous or enlarged base is much the same as that of the original specimens collected, but there are more fibrous roots attached, and they are more centrally fixed underneath, as may be seen in the growth of the common onion; the specimens heretofore examined had more of a side development, as though the attachment to the root of the parent plant had absorbed somewhat of the substance or caused an unequal growth.

Here we have two facts shown :—that the seeds of *Orobanche minor* may remain in the soil an indefinite time before germinating, and, that they do not require attachment in order to induce germination. As this species is parasitic on clover usually, and may have a preference for that, it is here shown that there may be a growth and full development without such service. One of these specimens measured 10 inches in height and had 45 flowers on it, with a large number of buds undeveloped at the top. I now have hopes that the coming season may give opportunity to watch their development still farther, as more of the seeds scattered in my yard may conclude, if they cannot find the proper foster parent, to grow without one.—ISAAC C. MARTINDALE, *Camden, New Jersey.*

SOME ARKANSAS FERNS.—*Cheilanthes lanuginosa*, Nutt., grows very abundantly upon limestone cliffs in the northwestern part of Arkansas. It can be found upon the escarpments of the wooded valleys that run inland from White river. I have found it inland two miles or more, and always on the north side of the valley in very dry situations, though it seems to like the shelter of projections. Its habitat is about the same as *Notholæna dealbata*, but I have never found them growing together. *Asplenium parvulum* is one of our common species in Arkansas. I have had this doubtful species under observation for several years, and have never been able to find intermediate forms or any reason for regarding it a variety of *A. ebeneum*. This species is found on dry ledges in this region, a situation in which I have never seen *A. ebeneum*. The latter is plentiful here but grows in rocky places in shaded woods. I have observed both species growing within a few feet of each other, in situations moist enough for both, and searched for intermediate forms but without success. Each retained its characteristics.

Cystopteris bulbifera, Bernh , is a common form in the northern part of Arkansas. Specimens from Benton county collected upon rocks in moist places measured nearly two feet long. The species mentioned above have never been reported from Arkansas, so far as I know. *Woodwardia angustifolia* may also be added, as I have seen specimens collected in the swamps of southern Arkansas.—F. L. HARVEY, *Ark. Ind. Univ., Fayetteville, Ark.*

FLORA OF KERGUELEN'S LAND.—The question is asked in the March number of the GAZETTE, whether the flora of Kerguelen's Land, "in which winged insects are either scarce or wanting," contains to any extent "flowers having showy petals or other properties attractive to winged insects." The elaborate recent memoir in the Transactions of the Royal Society, London, may answer the question. There are twenty-one indigenous phænogamous plants now known on Kerguelen's Land. Not one of them is showy flowered; of those that have petals at all the most conspicuous are the three species of *Ranunculus*, which in this respect are about equal to our *R. Cymbalaria*; the others are *Montia fontana*, *Tillæa moschata* and *Limosella aquatica*.—A. G.